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Memory B cell response to Japanese Encephalitis vaccination in JE endemic area of Uttar Pradesh

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Background: Japanese Encephalitis (JE) is the leading cause of viral encephalitis in Asia. Vaccination is the most effective countermeasure for protecting individuals from Japanese Encephalitis virus (JEV) infection. Neutralizing antibodies and its persistence after JEV vaccination is considered as important correlate of protection. Memory B cells play an important role in replenishing the pool of long lived plasma cells to maintain protective antibody titre. Recognition of these cells might be helpful in prediction of long term vaccine induced immunological memory. Therefore we utilized a B cell ELISPOT assay enumerate JE specific memory B cell in JE vaccinated children at different time points.

Methods & Materials: Children from Kushinagar District, a endemic area for JE in Uttar Pradesh were vaccinated under JE vaccination programme. Blood samples were collected from pre-vaccinated children followed by post-vaccination sequential sampling at day 10, 28, 56 and 6 month. PBMC were isolated and JE specific memory B cells (MBC) evaluated by B cell Elispot assay. Spots were counted and JE specific MBC were expressed as JE specific IgG Antibody secreting cell per 10^5 PBMC.

Results: Before vaccination (Day 0) JE specific MBC were at baseline although in few children memory B cells were detected this could be because of natural infection. On day 10, slight increase in count was observed. However significant increase in JE specific memory B cells was observed at 28 post vaccination (mean 36.97 spot forming cell per 10^5 PBMC; $p < 0.0001$). On day 56, Decrease in MBC was observed (mean 11.08 spot forming cell per 10^5 PBMC, $p < 0.0001$). However, 6 month post vaccination this count was maintained (mean 11.59 spot forming cell per 10^5 PBMC) and found to be greater than baseline (Day 0).

Conclusion: This study enumerates persistence of memory B-cells after vaccination on JE endemic area. This will add to existing knowledge and contributes to designing of an improve vaccine against Japanese encephalitis. Role of memory B should also be evaluated as a potential component in a surrogate assay of vaccine effectiveness.

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Practice of people in dealing with animals related to Crimean-Congo Hemorrhagic Fever in Nur County, Mazandaran Province, Northern IranS.P. Ziapour^{1,*}, A. Enayati¹, S. Kheiri², S. Chinikar³, S. Khakifirouz³, S.H. Nikookar¹, F. Babamahmoodi¹, M.R. Haghshenas¹, M. Moosazadeh¹¹ Mazandaran University of Medical Sciences, Sari, Iran, Islamic Republic of² Pasteur Institute of Iran, Amol, Iran, Islamic Republic of³ Pasteur Institute of Iran, Tehran, Iran, Islamic Republic of

Background: Crimean-Congo Hemorrhagic Fever (CCHF) is a viral zoonosis tick-borne disease transmitted by tick biting, contact to blood or carcass of infected animals or humans. Iran is located in the category of countries with high prevalence of CCHF. However, no report of this disease was made from Mazandaran Province until 2010. Because of the first report of CCHF occurrence in Nur County, Mazandaran province in occupation related to animals, this study was undertaken to investigate high risk practice of people engaged in occupations related domesticated animal.

Methods & Materials: In 2012, a cross-sectional study was performed on 314 people including livestock farmers, animal keepers, shepherds, butchers, abattoir workers, chefs and veterinary staff to investigate their practice against CCHF disease in three Districts of Nur County. Prevalence of each practice including lack of protective wear, contact with livestock, slaughtering and contact with fresh flesh and blood of livestock and removing and squashing ticks from animals' body with unprotected hand were reported and relationship between each practice and demographic and ecologic variables were analyzed by Pearson's chi-square and binomial regression tests ($P < 0.05$).

Results: 289 out of 314 individuals were interviewed. Odds ratio (OR) of high risk practices including lack of protective wear when slaughtering or slicing fresh raw livestock meat was high in livestock farming (OR = 29.69, CI: 10.56–83.41), in people older than 59 years and more (OR = 23.93, CI: 3–190.8), in illiterate individuals (OR = 12.86, CI: 3.52–46.99) than other groups. Removing and squashing ticks from animals' body with unprotected hand was high in category of butchers who worked in sheep and beef husbandry than other occupations (OR = 40.5, CI: 5.37–305.34).

Conclusion: Our results proved high risk practices in the animal husbandry occupations; it would be a continuation of the increased risk of CCHF and even its epidemic among them.

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